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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,042	05/01/2001	Erik J. Zimmer	M-9848 US	4500

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SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110

EXAMINER

KILKENNY, TODD J

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/04/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,042	ZIMMER ET AL.	
	Examiner	Art Unit	
	Todd J. Kilkenny	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____ .
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-8 and 12-18 is/are rejected.
- 7) Claim(s) 9-11, 19 and 20 is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 01 May 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____ .
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 3, 5 - 8, 12 – 14 and 16 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano (US 6,278,681) in view of Takei et al (US 6,125,092), Higashiura et al (US 6,184,512) and Ball et al (US 6,370,290).

Nagano teaches a method of fabricating an optical head including a laser diode chip. Referring to the embodiment of Figure 10, Nagano teaches mounting a submount (4) carrying a laser diode chip (1) onto the surface of a substrate (16). Nagano further teaches that the substrate surface may be designed to have an alignment mark or marks for accurately mounting the submount (4) (Col. 24, lines 18 – 20). Nagano appears to be silent as to providing alignment marks on the submount as well. Nagano also appears to be silent as to creating a fixed bond between the submount and substrate surface by employing an adhesive.

Takei et al. teach an optical head assembly and further disclose aligning the optical components so as achieve a high precision optical path between the laser diode and objective lens. Takei et al suggest alignment marks for aligning grating component (12) onto unit case (7), which contains optical unit (70). Referring to Figure 2, Takei et

al teach providing first and second alignment marks on the grating (12) and corresponding first and second alignment marks on the top surface of the casing (7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide first and second alignment marks on both the submount and substrate surface of Nagano to more effectively and more easily obtain the alignment desired by Nagano in view of Takei et al teaching to provide first and second alignment marks on both components of an optical head that are to be aligned and joined, wherein one of ordinary skill in the art would readily recognize that employing alignment marks on both components would enable easier and more precise alignment.

Higashiura et al teach an optical pickup apparatus and disclose mounting a submount (3) carrying a laser diode (4) on to the surface of a substrate (2) and further teach fixing the submount (3) onto the surface (2a) via an adhesive (Col. 2, lines 47 – 58).

Ball et al teach an optical system including an optical head assembly having an optical beam generator and a lens assembly. Ball et al teach that the assembly and alignment of the optical components is critical and further teach mounting the laser head assembly (12) onto the upper surface of a substrate (44) and securing thereto in a fixed manner by employing a compliant adhesive (46) (Col. 8, lines 1 – 47). Ball et al further suggest that employing this mounting technique isolates the optical components from the effects of thermal expansion, which minimizes the stresses that are deleterious to the optical alignment of the system.

It therefore would have been further obvious to one of ordinary skill in the art at the time of the invention to provide an adhesive in mounting the submount of Nagano in view of Higashiura teaching to employ adhesive to fixedly bond a submount onto a substrate surface in the manufacture of optical heads and further in view of Ball et al teaching that adhesively mounting a laser head assembly using a compliant adhesive will isolate each optical component from the effects of thermal expansion and therein protect against misalignment.

As to claims 6, 7, 17 and 18, it would have been obvious to one of ordinary skill in the art to employ a microscope to better view the alignment marks of Nagano in mounting the submount onto the photodiode chip as one of ordinary skill in the art would readily recognize that in accordance with the size of the components and alignment marks involved microscopic means would need to be employed to most effectively see the alignment marks and thereafter mount the submount in the precise location.

As to claim 8, in the embodiment of Figure 31b, Nagano discloses mounting the submount onto an electrode (48b). One of ordinary skill in the art would readily recognize said electrode to be an electrode bonding pad.

3. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano (US 6,278,681) in view of Takei et al (US 6,125,092), Higashiura (US 6,184,512) and Ball et al (US 6,370,290) as applied to claims 1 and 12 above, and further in view of DiStefano et al (US 5,518,964).

Both Higashiura and Ball et al appear to be silent as to activating the adhesive via a heat generator. However, Ball et al do suggest employing an adhesive from Ablestick and as disclosed by DiStefano et al, Ablebond™ is a bonding material produced by Ablestick used in mounting microelectronics that has an activation temperature above room temperature (Col. 17, lines 24 – 47). It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to heat activate the adhesive of Nagano in view of Higashiura and Ball et al as the adhesive suggested by Ball et al is known in the industry to be activated at a temperature above room temperature as disclosed by DiStefano et al.

Claim Objections

4. Claims 9-11 and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Todd J. Kilkenny whose telephone number is (703) 305-6386. The examiner can normally be reached on Mon - Fri (9 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers

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for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Todd J. Kelly

TJK
October 29, 2002

Robert

Robert J. Kelly
Todd J. Kelly
TJK
October 29, 2002